

USSR/Chemical Technology - Chemical Products and Their
Application. Industrial Organic Synthesis

I-14

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13070

treatment with H_2SO_4 . a) A solution of synthetic fatty acids in twice their volume of light gasoline (BP < 100°) or C_6H_6 , was treated at $20-22^\circ$ with efficient stirring, for 30-60 minutes, with a saturated solution of I (in the presence of undissolved I), taken in an amount $\geq 120\%$ of the theoretical; ~ 350 ml of saturated solution of I being taken per 80 g of acids of normal structure. The complex that was formed was filtered off together with the excess I and washed with gasoline or C_6H_6 . From the gasoline (benzene) layer, were isolated, by distillation of the solvent, the acids that did not react with I. The aqueous layer was stirred while heating to 80° , with the filtered off precipitate, the acids that separated were removed, washed with water and dried, while the aqueous solution of I was cooled and used together with the precipitate of I that separated, in the

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next experiments. b) I, taken in an amount corresponding to 120% of the theory, was ground with the mixture of synthetic fatty acids, preferably in the presence of 3% (on the basis of I) of water or CH_3OH . Further washing of the complex that was formed to remove the unreacted acids, their isolation and decomposition of the complex, were carried out as described above. Presented are the results of separations of mixtures of saturated acids, produced from peanut oil and by oxidation of synthol fraction (boiling range 220-330°). Ascertained was the possibility of utilizing extractive crystallization by means of I, for the separation of synthetic fatty acids produced by oxidation of liquid hydrocarbon mixtures, including also their solid fractions, and also for the purification from byproducts of oxidation. By changing the conditions of extractive crystallization

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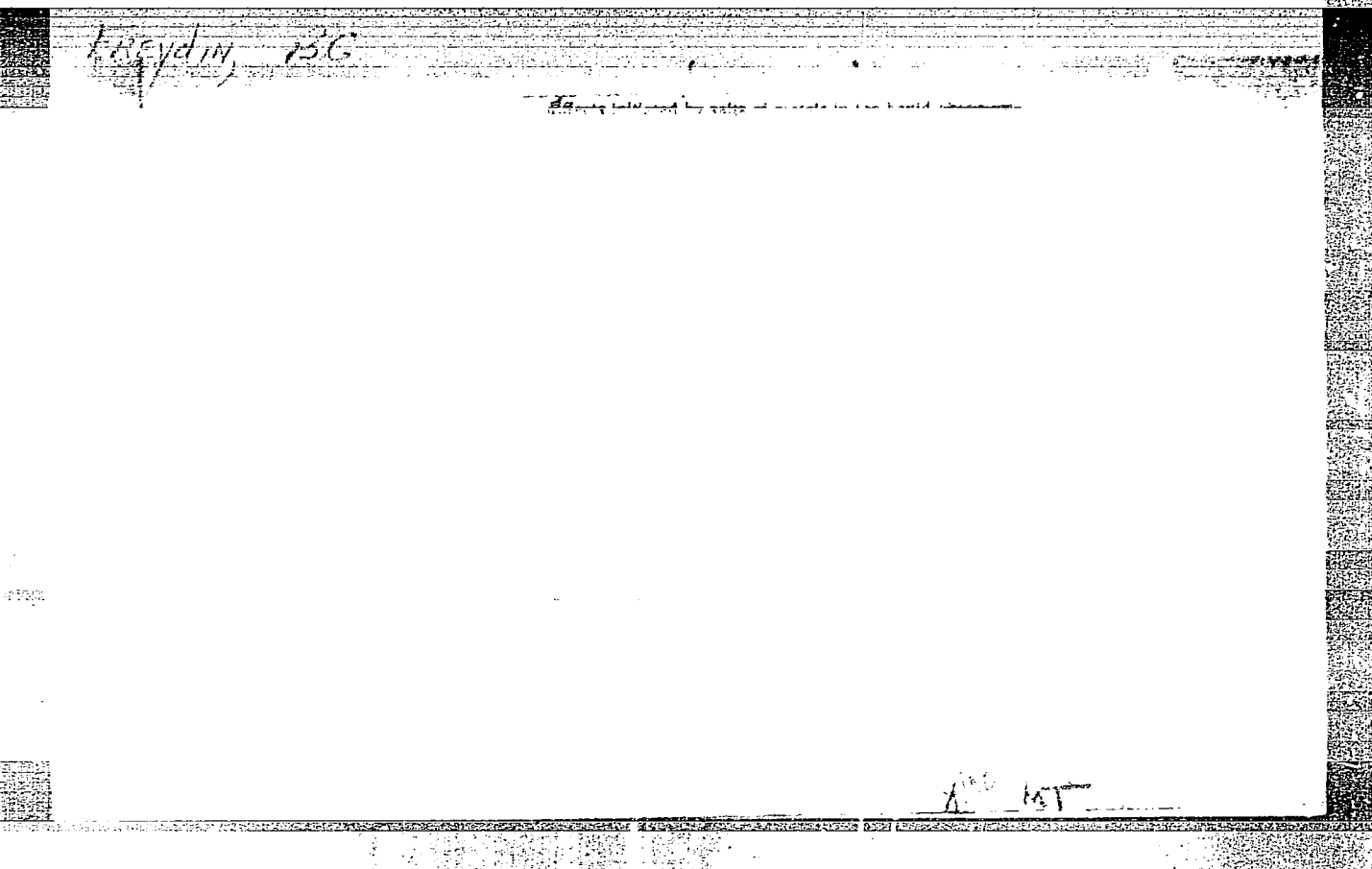
Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13070

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413620019-5

(change in the amount of I) it is possible to isolate purer acids of a normal structure.

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FREYDIN, B. G., Cand Chem Sci -- (diss) "Catalytic reactions in the process of oxidation of liquid paraffins." Leningrad, 1960. 18 pp; (Leningrad Order of Lenin State Univ im A. A. Zhdanov); 200 copies; price not given; (KL, 30-60, 137)

S/064/60/000/004/007/021/XX
B013/B069

AUTHORS: Tsyskovskiy, V. K., Levina, M. I., Freydin, B. G.,
Leont'yeva, V. P.

TITLE: Synthesis of Dicarboxylic Acids by Direct Oxidation of Liquid
Paraffins With Atmospheric Oxygen

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 4, pp. 8 - 11

TEXT: A study has been made of the oxidation conditions for liquid paraffins ensuring the formation of an oxidation product with a sufficient content of bifunctional products, among them free and bound dicarboxylic acids. Methods for the precipitation of dicarboxylic acids from the oxidation product have also been studied. The fraction boiling at 240-350°C was chosen, which is isolated in carbamide deparaffination of Diesel fuels (Ref. 8). The system described in Ref. 9 was used for oxidation. The optimum rate of air supply for the oxidation of paraffins to oxy acids had been determined in previous investigations, and had been found to amount to 5.2 cm/sec. Manganese salts of naphthenic acids served as catalysts (Ref.10).

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Synthesis of Dicarboxylic Acids by Direct
Oxidation of Liquid Paraffins With
Atmospheric Oxygen

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The effect of reaction temperature and reaction time upon the conversion degree of paraffins to oxy acids is illustrated in Fig. 1, and the effect upon the rate of formation of free and bound carboxyl groups is shown in Fig. 2. The range between 130° and 140°C has been found to be most favorable for oxidation. In this range, oxidation takes place at a satisfactory rate, and provides higher yields compared with higher temperatures. Experiments were conducted at 135°C with a view to obtaining better yields of useful reaction products. By an increase of the concentration of oxygen-containing compounds, the hydroxyl number is steadily decreased, while acid and ether numbers are increased. It was found that the yields of dicarboxylic acids referred to the initial paraffin are in no direct relationship to the saponification number of the oxidation product. The yield of dicarboxylic acids rises up to a given oxidation degree. The yield is not increased by a further increase of the oxidation degree. At a hydrolysis temperature of 150°-170°C, the amount of isolated water-soluble acids attains its maximum (Fig. 3). A further increase of temperature reduces the yield due to decomposition of dicarboxylic acids. The quality of acids

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Synthesis of Dicarboxylic Acids by Direct
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isolated at higher temperatures however, is higher both with respect to the ether number and to the content of crystalline acids. The composition of dicarboxylic acids was studied on silica gel by distribution chromatography (Ref. 4). The following provisional data concerning the material balance of the synthesis were obtained for the oxidation of liquid paraffins when the washed-out oxidation product was introduced (residue from hydrolysis): raw dicarboxylic acids: 54.0%; distilled acids: 44.0% (28.0% crystalline and 16.0% non-crystalline). On the basis of the results obtained, the synthesis of dicarboxylic acids by direct oxidation of liquid paraffins in one operation is said to be very promising. There are 3 figures, 5 tables, and 10 references: 6 Soviet.

ASSOCIATION: VNIIneftekhim

Card 3/3

FREYDIN, B.G.,; TSYSKOVSKIY, V.K.

Catalytic effects in the process of the synthesis of higher fatty acids by the oxidation of liquid paraffin hydrocarbons. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no.8:138-147 '60.

(MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

(Acids, Fatty) (Paraffins) (Manganese compounds)

IGONON, P.G., inzh.; SVITKIN, V.V., inzh.; MITROFANOV, M.G., kand.tekhn.nauk;
SLEPTSOV, Yu.S., inzh.; KOLOZHVAR, A.A., inzh.; PASHENKO, M.A., inzh.;
ZHIVOLUPOV, M.A., inzh.; Prinimali uchastiye: MUSHENKO, D.V.;
TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.; FREYDIN, B.G.; PYL'NIKOV, V.I.;
LEVINA, M.I.; LEVIN, A.I.; LUR'YE, Ye.I.; BAYKINA, T.A.; UDOVENKO, S.A;
MARCHENKO, T.A.

Effect of the method of liquid paraffin oxidizing on the yield and
quality of the obtained fatty acids. Masl.-zhir.prom. 28 no.11:20-23
N '62. (MIRA 15:12)

1. Groznenskiy nauchno-issledovatel'skiy neftyanoy institut (for
Igonin, Svitkin, Mitrofanov, Sleptsov, Kolozhvari, Pashenko, Zhivolupov).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh
protseessov (for Mushenko, TSyskovskiy, Shcheglova, Freydin, Pyl'nikov,
Levina, Levin).3. Leningprogaz (for Lur'ye, Baykina). 4. VNIISINZh
(for Udoenko, Marchenko).
(Paraffins) (Acids, Fatty)

ACCESSION NR: AT4010621

S/3051/63/000/000/0438/0444

AUTHOR: Tsy*skovskiy, V. K.; Freydin, B.G.

TITLE: Catalyzed oxidation of n-tetradecane in the liquid phase

SOURCE: Kataliticheskiye reaktsii v zhidkoy faze. Trudy* Vsesoyuznoy konferentsii. Alma-Ata, 1963, 438-444

TOPIC TAGS: catalyst, catalytic oxidation, oxidation, n-tetradecane, naphthene, naphthenate, tetradecane, aromatic hydrocarbon

ABSTRACT: Mn-napthenate (0.03% at 125, 140, and 155C) and its mixture with K-napthenate at 125C were used as catalysts in the oxidation of n-tetradecane, the kinetics of which are presented in time curves for the reacted hydrocarbon. The accumulated hydroxyl-, carbonyl-, carboxyl-, and ester radicals are discussed and the products characterized. The curves show that at all temperatures the proportion of alcohols and ketones in the product decreases and the proportion of acids and esters increases as the oxidation progresses. A rise of the reaction temperature within 125-155C increases the proportion of ketones and decreases that of acids in the product. The product contains 18-32% alcohols, 8-49% ketones, 5-38% acids, and 17-32% esters as 5 to 70 mol%

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ACCESSION NR: AT4010621

of the hydrocarbon oxidizes. The shift in reaction direction may be explained by a direct oxidation of alcohols to acids without intermediate ketone formation in the presence of the catalyst. The authors conclude that the action may be only triggering or both triggering and catalytic, depending on the particular metal with variable valence. Orig. art. has: 1 graph, 2 tables, and 3 chemical formulas.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (All-Union Scientific Research Institute of Petrochemical Processes)

SUBMITTED: 00

DATE ACQ: 25Jan64

ENCL: 00

SUB CODE: GC

NO REF SOV: 014

OTHER: 005

Card^{2/2}

FREYDIN, B.G.

Mechanism underlying the formation of esters during the oxidation
of paraffinic hydrocarbons. Zhur. prikl. khim. 36 no.5:1101-
1106 My '63. (MIRA 16:8)

(Esters) (Paraffins) (Oxidation)

FREYDIN, B.G.; TSYSKOVSKIY, V.K.

Effect of the temporary cessation of the oxidation reaction
of paraffins on its further development. Zhur. prikl. khim.
36 no.11:2552-2554 N '63. (MIRA 17:1)

FREYDKIN, G.L.

Building the first section of K3-14. Stroi. truboprov. 9 no.5:
18-20 My '64. (MIRA 17:9)

1. SU-1 tresta Benzinoprovodstroy, Cholyabinsk.

MAKAROVA, Ye.I.; FREYDIN, G.S.

Standardization of a method for measuring blood pressure in
children. *Pediatrics* no.6:41 '61. (MIRA 14:9)

1. Iz otdela razvitiya i vospitaniya (zav. - chlen-korrespondent
AMN SSSR prof. H.M. Shchelovanov) Instituta pediatrii AMN SSSR
(dir. - chlen-korrespondent AMN SSSR prof. O.D. Sokolova-Ponomareva)
i Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo
instrumentariya i oborudovaniya (dir. - kand.tekhn.nauk I.P.
Smirnov).

(BLOOD PRESSURE)

FREYDIN, G. Ya.

"Lumbering in Vologda Province," Vologda Oblastnoye izd-vo, 1950

AUTHOR: Freydin, G.Ya., Engineer, Chief of Ustyugles Kombinat SOV-118-58-8-9/24
TITLE: Large Package-Type Timber Loading (Krupnopaketrnaya pogruzka lesa)
PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1958, Nr 8, pp 22-24 (USSR)
ABSTRACT: Workers of the Ustyugles kombinat of the Vologodskiy sovmarkhoz developed a method of large package-type timber loading. The trailer tractor is loaded with the help of pulley blocks. As much as 18 to 25 cu m of timber can be loaded in one operation. The method is described in detail. The cost of the loading operation is reduced to one third of former costs. There are 2 photos and 1 diagram.
ASSOCIATION: Ustyugles kombinat (The Ustyugles Kombinat)
1. Lumber--Loading

Card 1/1

AGAPOV, Yu.Ya., FREYDIN, G.S.

Disturbances in respiratory gas exchanges during mitral commissurotomy
[with summary in English]. Khirurgiia 34 no.6:116-121 Ja '58

(MIRA 11:8)

1. Iz gosspital'noy khirurgicheskoy kliniki (dir. - prof. V.S. Mayat)
II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni N.I.
Pirogova i Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinsko-
go instumentariya i oborudovaniya (dir. I.P. Smirnov).

(COMMISSUROTOMY, complications

disturbances in resp. gas exchange (Rus))

(RESPIRATION,

gas exchange distrubances during mitral commissurotomy
(Rus))

FEDURKIN, V.V.; NESTERENKO, A.T.; KOVSHAROVA, L.A.; RAZUMOVSKAYA, Ye.I.;
OSIPOVA, Ye.V.; VASIL'YEVA, G.S.; PEKARSKIY, M.D., otv.red.;
ZVORONO, B.P., zamestitel' otv.red.; BOLDYREV, B.V., red.; VOLODIN,
Ye.A., red.; DANIL'CHENKO, Ye.P., red.; ORSKIY, I.N., red.; MISHIN,
L.N., red.; ~~FREYDIN~~, G.S., red.; TSEPELEV, Yu.A., red.

[Technological instruction material; aluminum and aluminum alloys
for medical articles] Rukovodiashchie tekhnicheskie materialy;
aliuminii i aliuminievye splavy dlia meditsinskikh izdelii. Moskva,
M-vo zdravookhraneniia, 1959. 70 p. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo
instrumentariya i oborudovaniya.

(MEDICAL INSTRUMENTS AND APPARATUS)

(ALUMINUM)

ABRAMOV, A.S.; MENDEL'SON, V.S.; FREYDIN, G.Yu.; POGOREL'SKIY, M.A.;
BOBKOV, L.I.; SELEKH, V.F.

Designing die casting molds for diamond tools. Mashinostroitel'
no.11:30-32 N '64 (MIRA 18:2)

FREYDIN, I.I.

Late results following curettage of the cavum uteri during the late puerperal period. Sovet. med. 26 no.5:132-134 My'63

(MIRA 17:1)

1. Iz akusherskogo otdeleniya (zav. I.A.Kaplanskiy) Roslavl'skoy gorodskoy bol'nitsy (glavnyy vrach G.S. Matviyevskiy).

FREIDIN, I.L.

FREIDIN, I.L. Strana Sovetov; kratkii ekonomiko-geograficheskii ocherk SSSR. [Moskva]
Molodaia gvardiia, 1937. 353 p.

NN

NNC

PU

DLC: HC335.F83

SO: LC, Soviet Geography, Part I, 1951, Uncl.

FREIDIN, I. L.

Sovetskaya Chuvashiya. [Soviet Chuvashia] Moskva Gos. sots.-ekon. izd-vo, 1949. 110p.
illus., fold. maps.

Transportation (p. 73).

DLC: DK511.C5F7

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress
Reference Department, Washington, 1952, Unclassified.

FREYDIN, I. I.,

"The Struggle for a Sea Route to the Pechora," Chronicles of the North; Yearbook of Historical Geography, History of Geographical Discoveries and Exploration of the North, v. 2, Moscow, Geografiz, 1957, 279 p. (Akademiya nauk SSSR. Kom-misiya Po problemam Severa).

Editorial Board: Andreyev, A. I., Belov, M. I. Burkhanov, V. F., Yefimov, A. V. (Resp. Ed.), Chernenko, M. B. (Deputy Resp. Ed.) and Shcherbakov, D. I.; Ed.: Vorontosova, A. I.; Tech. Ed.: Kosheleva, S. M.; Map. Ed.: Mal'chevskiy, G. N.

PURPOSE: The book is intended for readers interested in the Soviet Arctic.

COVERAGE: The present volume, the second of a series of three, is a collection of 27 articles by various authors presenting an historical account of the ex-ploration and economic development of the Soviet North. A small part of the book is devoted to Arctic areas beyond the confines of the Soviet Union. The aim of the book is to contribute to an understanding of the physical geography, cartography, ethnography, and economy of the Soviet North through a historical survey of these factors. A large number of authors, explorers, scientists, travellers, pilots, navigators, etc., are cited.

FREYDIN, I. L.
FREYDIN, I. L.

Struggle for a sea route to the Pechora. Let. Sev. 2:206-215 '57.
(MIRA 10:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova,
Geograficheskiy fakul'tet, Kafedra polyarnykh stran.
(Russia, Northern--Discovery and exploration) (Pechora river)

FREYDIN, I.I.

Conference on the development of productive forces in Eastern
Siberia. Probl.Arkt.i Antarkt. no.3:101-108 '60. (MIRA 13:9)
(Siberia, Eastern--Shipping)
(Northeast passage)

FREYDIN, I.L.

The first "suede leather factory" in the Pechora Valley of the
North. Let. Sev. 4:143-147 '64. (MIRA 18:3)

1. Kol'skiy filial AN SSSR.

FREYDIN, I.L.

Problems in the development of transportation on the Kara Sea
via the straits of the Novaya Zemlya. Probl.Sev. no.3:128-136
'59. (MIRA 13:4)

1. Tsentral'nyy ekonomicheskoy nauchno-issledovatel'skiy
institut Gosplana RSFSR.
(Kara Sea--Shipping)

FREYDIN, I. M. and PEYVE, V. V. Engs.

"Spacial Photometric Graphs of Conditioned Horizontal Lighting,"
Prom. energ., 9, No.9, 1952

FREYDIN, K. M.

Effect of spinal cord injury on the functions of internal organs. Nevropat. psikhiat., Moskva 19 no.4:34-38 July-Aug. 1950. (GLML 20:1)

1. Of the Neurological Division (Head -- Prof. A. Ye. Kul'kov), Central Institute of Health Resort Therapy.

1 13 EY KIV AHAIM MARKOVICH

FREYDIN, Khaim Markovich, doktor meditsinskikh nauk, professor; USPENSKAYA,
N.V., redaktor; DMITRIYEVA, R.V., tekhnicheskii redaktor.

[Sanatorium and health resort therapy for nervous diseases]
Nervnye bolezni i ikh sanatorno-kurortnoe lechenie. Moskva,
Izd-vo "Znanie," 1954. 23 p. (Vses. ob-vo rasprostraneniia
polit. i nauchn. znaniia, ser.3, no.51) (MLRA 7:12)
(Nervous system--Diseases) (Therapeutics, Physiological)

FREYDIN, Kh.M.

Principles of resort therapy for patients with aftereffects of epidemic poliomyelitis. Vop.kur.fizioter. i lech.fiz. kul't. 21 no.2:14-20 Ap-Je '56. (MLRA 9:9)

1. Iz nevrologicheskogo i bal'neo-fizioterapevticheskogo otdeleniy (zav. - prof. Kh.M.Freydin) Tsentral'nogo instituta kurortologii (dir.-kandidat meditsinskikh nauk G.N.Pospelova)
(POLIOMYELITIS) (PHYSICAL THERAPY)

Antylin, Antylin, Lihana
FREYDIN, Khaim Markovich; KORYANSKIY, O.P., red.; SENCHILO, K.K., tekhn.
red.

[Diseases of the spinal cord and physical methods of treating
them] Porazheniia spinnogo mozga i fizicheskie metody v ikh
lechenii. Moskva, Gos. izd-vo med. lit-ry, 1957. 231 p.
(SPINAL CORD--DISEASES) (MIRA 11:4)

FREYDIN, Kh.M.

"Infectious lumbosacral radiculoneuritis and its spa treatment"
by S.M.Petelin. Reviewed by Kh.M.Freidin. Vop.kur., fizioter.i
lech.fiz.kul't. 27 no.2:178-180 Mr-Apr '62. (MIRA 15:11)
(NEURITIS) (HEALTH RESORTS, WATERING PLACES, ETC.)
(PETELIN, S.M.)

AKULOVA, R.F.; BYKHOVSKIY, Z.Ye.[deceased]; VYGOLNER, Ye.B.;
GOL'DFAYL', L.G.; DIK, V.G.; DMITRIYEVA, E.M.; DUEYNINA,
Ye.I.; LEVIN, B.S.; NEZLIN, S.Ye.; SPERANSKIY, N.I.;
SOROKINA, Ye.I.; TKACHENKO, A.F.; FREYDIN, Kh.M.;
CHETVERIKOV, N.S.; VOL'FSON, I.Z., red.; KOKIN, N.M., tekhn.
red.; FRONINA, N.D., tekhn. red.

[Manual for physicians on the selection of sanatoriums and
health resorts] Rukovodstvo dlia vrachei po sanatorno-
kurortnomu otboru. Pri uchastii R.F.Akulovoi i dr. 2 izd.,
dop. i ispr. Moskva, Medgiz, 1963. 511 p.

(SANATORIUMS)

(MIRA 16:12)

(HEALTH RESORTS, WATERING PLACES, ETC.)

FREYDIN, Kh.M.

Development of health resort neurology in the U.S.S.R.; materials on the history of health resort therapy. Vop. kur., fizioter. i lech. fiz. kult'. 30 no.3:255-261 My-Je '65.

(MIHA 18:12)

1. Tsentral'nyy institut kurortologii i fizioterapii (direktor - kand. med. nauk G.N. Poapelova), Moskva. Submitted March 4, 1963.

FREYDIN, Kh.M.; LEYTES, F.L.

Effect of sodium chloride baths on the function of the hypophysial-adrenal system. Vop. kur., fizioter. i lech. fiz. kul't. 30
no.4:300-303 J1-Ag '65. (MIRA 18:9)

1. Bal'neoterapevticheskiy otdel (zav.- prof. Kh.M. Freydin) i
Radiologicheskaya laboratoriya (zav.- prof. Ye.S. Shchepot'yeva)
TSentral'nogo instituta kurortologii i fizioterapii (dir. G.N.
Pospelova), Moskva.

FREYDIN, L.M.; RUDAKOV, L.M.; GORSHTEYN, I.I.

Sintering with a various amount of anthracite dust in the fuel.
Metallurg. 8 no.10:3-4.0 '63. (MIRA 16:12)

1. Kommunar'skiy metallurgicheskiy zavod i gornometallurgicheskiy
institut.

FOGEL'SON, L.I., prof.; SHIK, L.L., prof.; FREYDIN, L.M., dots.,
nauchnyy red.; BELYAK, A.S., tekhn. red.

[Diseases of the heart and vessels] Bolezni serdtsa i sosudov.
Moskva, Izdatel'skoe biuro tresta "Meduchposobie." Book 1. Atlas.
1961. 283 p. (MIRA 15:3)

(CARDIOVASCULAR SYSTEM--DISEASES)

ZHETVIN, N.P., kand.tekhn.nauk; FREYDIN, L.M., inzh.; RUDAKOV, L.M., inzh.

New developments in research. Stal' 23 no.7:652 J1 '63.

(MIRA 16:9)

(Steel--Heat treatment)

FREYDIN, L.M.; GRITSENKO, M.I.; PETROV, K.M., inzh.; D'YAKONOV, V.I., inzh.

New developments in research. Stal' 24 no.7:596 J1 '64.

(MIRA 18:1)

FREYDIN, L.M., polkovnik meditsinskoy sluzhby, dotsent

A short historical sketch of the development of military roentgenology
in Russia before the Great October Socialist Revolution. Vest. rent. 1
rad. 31 no.1:88-93 Ja-F '56. (MIRA 9:7)
(ROENTGENOLOGY, hist.
in Russia)

ONOPRIYENKO, V.N., kand.tekhn.nauk; STARSHINOV, B.N., kand.tekhn.nauk;
STARSHINOV, B.N., kand.tekhn.nauk; TKACHENKO, A.A., inzh; SINITSKIY,
V.D., inzh.; FREYDIN, L.M., inzh.; PORTHOY, L.Ya., inzh.

Operations of the blast furnace no.3 at the Voroshilov Plant using
fluxed IUGOK sinter. Biul.TSNIICM no.17:1-6 (325) '57.

(MIRA 11:4)

(Blast furnaces)

AUTHOR: Onopriyenko, V.P., Starshinov, B.N., Candidates of Technical Sciences and Trachenko, A.A., Sinitskiy, V.D., Freydin, L.M., Portnyy, L.Ya., Engineers. 133-9-2/23

TITLE: Operation of a Blast Furnace with 1.1 atm. Top Pressure.
(Rabota domennoy pechi s davleniem do 1.1 ati)

PERIODICAL: Stal', 1957, No. 9, pp. 772 - 778 (USSR).

ABSTRACT: The influence of top pressure variation from 0.6 to 1.1 atm. on the operation of a large (1 386 m³) blast furnace was investigated. The profile of the furnace is shown in Fig.1. Characteristics of burden materials and coke during the individual test periods are given in Tables 1 and 2. Operating factors are given in Table 3. Changes in the distribution of CO₂ along the throat radios in Fig.2, the composition and temperatures of the peripheral and top gas in Fig.3, the pressure drop with the height of the furnace in Fig.4, changes in the gas pressure along the furnace throat radius in Fig.5. Changes in the length of tap hole and furnace-operating indices during various testing periods are given in Tables 4 and 5, respectively. On the basis of experience gained, the following conclusions are drawn: an increase of top pressure from 0.6 to 1.1 atm., contributes to the development of the peripheral flow of gases. In such case, a decrease on the coke charge or an increase in the proportion

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133-9-2/23

Operation of a Blast Furnace with 1.1 atm. Top Pressure.

of direct (ore first) charges (with simultaneous dropping of the whole charge) leads to an increase in amount of ore charged to the periphery with a subsequent decrease in the peripheral flow. Static pressure along the furnace height changes lineary. On increasing pressure of gas in the throat from 0.11 atm. to 0.46 atm. and blast volume from 1 400 to 3 400 m³/min, the blast pressure increased more than that of top gas, while the uniform drop of pressure along the height of the furnace was preserved. On increasing mean gas pressure in the furnace by an appropriate increase in driving rate, the blast pressure increases to the same extent as the pressure of gas in the throat. With a constant blast volume, the pressure of gas in the stack increases to a lesser degree than that in the throat. On transfer to a higher top pressure (1.1 atm.) the blast temperature can be increased by 20 - 50 °C and the driving rate increased by 2-6% (in comparison with operating conditions of a top pressure 0.6 - 0.8 atm). The operation of the furnace becomes smooth, but on decreasing top pressure back to 0.6 - 0.8 atm., the smoothness of the operation deteriorates. On increasing top pressure from 0.8 to 1.1 atm., the output of the furnace increased by 8.3% and the coke rate decreased by 2.9%. On decreasing pressure from 1.1 atm. to 0.6 - 0.8 atm., the output of the furnace decreased by 5.0 - 9.3%

Card 2/3

Operation of a Blast Furnace with 1.1 atm. Top Pressure. 133-9-2/23

and coke rate increased by 3.8 - 3.7% (recalculated on equal iron content in the blast). Tables and figures.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413620019-5

ASSOCIATION: The Ukrainian Institute of Metals (Ukrainskiy Institut Metallov) Works im. Voroshilov (Zavod im. Voroshilova)

AVAILABLE: Library of Congress.

Card 3/3

ABRAMOVICH, M.N., inzh.; GORSHTEYN, I.I., kand.tekhn.nauk; MASYURA, I.M.,
inzh.; BOL'SHAKOV, A.A., inzh.; RUDAKOV, L.M., inzh.; FREYDIN,
L.M., inzh.; Primali uchastiye: SUBBOTIN, Ye.P.; TERTYSHNYI,
V.P.; MAKSIMCHIK, N.F.; BOYKO, S.G.

Practices of the Alchevsk sintering plant. Stal' 21 no.10:869-873
0 '61. (MIRA 14:10)

1. Alchevskiy metallurgicheskiy zavod i Voroshilovskiy gor-
nometallurgicheskiy institut.
(Voroshilovsk--Sintering)

FREYDIN, L.M., inzh.; RUDAKOV, L.M., inzh.

New developments in research. Stal' 23 no.7:600 J1 '63.
(Blast furnaces) (MIRA 16:9)

PIROGOV, A.A.; LEVE, Ye.N.; KRASS, Ya.R.; VORONIN, V.I.; TKACHENKO, A.A.;
BULATNIKOV, Ye.A.; FREYDIN, L.M.; KOSINSKIY, V.F.

Testing carbon blocks in iron tapping troughs in blast furnaces.
Ogneupory 28 no.8:368-370 '63. (MIRA 16 :9)

1. Ukrainskiy nauchno-issledovatel'skiy institut ognenporov (for
Pirogov, Leve, Krass). 2. Kommunarskiy metallurgicheskiy zavod
(for Voronin, Tkachenko, Bulatnikov, Freydin, Kosinskiy).

FRYBIL, 1.1.1. 1.1.1. 1.1.1.

Performance of a 930 M³-capacity blast furnace in the production
of foundry cast iron on oxygen-enriched blowing. Met. i gornorud.
prom. no.6:14 B-D '64. (MIRA 18:3)

8

STARSHINOV, B.N.; SINITSKIY, V.D.; SEN'KO, G.Ye.; GULYGA, D.V.; BABIY, A.A.;
KHORUZHIY, A.G.; Prinimali uchastiye: OSTROUKHOV, M.Ya.; SAVELOV,
N.I.; PLISKANOVSKIY, S.T.; MOISEYEV, Yu.G.; LAVRENT'YEV, M.L.;
TARASOV, F.P.; ZAGREBA, A.V.; KAMENEV, R.D.; TKACHENKO, A.A.;
FREYDIN, L.M.; LUKIN, P.G.; POPOV, Yu.A.; MISHIN, P.P.; KARACHENTSEV,
M.D.; DOLMATOV, V.A.; AYUKOV, A.S.; PALAGUTA, V.P.; VYAZOVSKIY, Yu.V.;
SOLODKIY, Yu.A.; KONAREVA, N.V.; SAPRONOV, Yu.V.; SINITSKAYA, S.K.;
SAPRONOV, B.V.; LEKAREV, V.L.; STOLYAR, V.V.; PROKHORENKO, Z.A.;
BANDINA, Ye.Ye.

Results of the first year of operation of large capacity blast
furnaces. Sbor. trud. UNIIM no.11:34-46 '65.

(MIRA 18:11)

FREYDIN, M.M.

Effect of high-voltage power supply sources on electrostatic
spraying of paint materials. Lakokras.mat.i ikh prim. no.1:
54-56 '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut tekhnologii lakokrasochnykh
polrytiy.

(Painting, Industrial)

L 1879-66 EWT(m)/EPF(c)/EWP(i)/EWP(j)/I/EWP(t)/EWP(b) JD/RM

ACCESSION NR: AP5022512

UR/0303/65/000/004/0040/0041
667.644.3

AUTHOR: Freydin, M. M., Moiseyev, Ye. V.; Yezhova, E. N.

TITLE: Deposition of multilayer coatings in an electric field

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 4, 1965, 40-41

TOPIC TAGS: varnish, protective coating, organosilicon compound, atomization

ABSTRACT: Experiments were performed on the multilayer deposition of a heat-resistant organosilicon primer on the deposition electrode of an electric atomizer (voltage, 80 kv), using an ESG rotor electrostatic generator. The thickness of the successively deposited layers was then increased by pulsed charging with a V-140-5 high-voltage transformer and kenotron rectifier. The improved deposition under pulsed charge conditions is due to the drainage of the charges off the layer surface during the periods between the pulses. This drainage was facilitated by depositing a semiconducting layer and using it as the substrate for the organosilicon coatings. Data on the coatings deposited with the aid of the ESG electrostatic generator and the V-140-5 high-voltage transformer are compared. The total thickness of the coating obtained with V-140-5 is 240--250 microns (10 layers);
Card 1/2

L 1879-66

ACCESSION NR: AP5022512

contrary to the case in which ESG was used, the deposition process did not cease and could have been continued. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, GC

NO REF SCV: 000

OTHER: 000

ML
Card 2/2

POMIRCHIY, R. (Leningrad); SAMYLKIN, B. (Leningrad); FREYDIN, R. (Leningrad)

Changing the design of gas water heaters. Pozh.delo 9 no.3:15 Mr '63.
(MIRA 16:4)

(Water heaters)

FREYDIN, S.M.

Differential diagnosis of multiple benign ulcers of the small curvature of the stomach. Vest.rent.1 rad. 34 no.5:76-77 S-O '59. (MIRA 13:3)

1. Iz rentgenovskogo otdeleniya (zav. S.M. Freydin) Moskovskoy gorodskoy bol'nitsy No.47 (glavnyy vrach M.A. Sirotin).
(PEPTIC ULCER diagnosis)

AID P - 2951

Subject : USSR/Electricity
Card 1/1 Pub. 29 - 1/35
Authors : Freydin, V. I. and A. M. Galinskaya, Engs.
Title : Adjusting the pulverized fuel system of boilers
Periodical : Energetik, 5, 1-4, My 1955
Abstract : At one of the electric power stations burning culm, an adjustment was made which effected considerable economies in coal pulverizing. The authors describe the measures adopted in the rebuilding and regulation of the ball mills and present the results obtained in tabulated form. Two tables, 2 drawings.
Institution : None
Submitted : No date

GINZBURG, Z.M., inzh.; BRAVIN, L.S., inzh.; FREYDIN, V.I., inzh.

Automatic control of a dredge slag removal pumping unit. Elek. sta.
32 no. 5:79-80 My '61. (MIRA 14:5)
(Electric power plants) (Automatic control)

FREYDIN, V.M.

Direct measurement of moisture loss in ventilating and humidifying
device. Tekst.prom. 17 no.6:52-54 Je '57. (MLRA 10:7)

1. Glavnyy mekhanik fabriki "Rezvooostrovskaya."
(Textile factories--Heating and ventilation) (Hydrometer)

FREYDIN, V.M., inzh.

Improving automatic control systems for ventilating and humidifying units. Tekst. prom. 18 no.1:42-43 Ja '58. (MIRA 11:2)

1. Glavnyy mekhanik Razvoostrovskoy tkatskoy fabriki.
(Textile factories--Heating and ventilation)

FREYDIN, V.M., inzh.

Multidisc sprayer-type humidifier. Tekst. prom. 19 no.5:70-72
My '59. (MIRA 12:10)
(Textile factories--Heating and ventilation)

ACCESSION NR: AP5010290

UR/0286/64/000/014/0091/0091

AUTHOR: Shkundin, B. M.; Bychkova, Ye. M.; Freydin, V. M.

TITLE: Hydraulic feeding device for supplying powdered materials into the main pipelines of hydraulic transportation installations. Class 81, No. 164232

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1964, 91

TOPIC TAGS: hydraulic equipment, hydraulic engineering

Translation: 1. A hydraulic feeding device for supplying powdered materials to the main pipelines of hydraulic transportation installations. The device includes a chamber which has devices for sealing it off at the top and bottom, a pipe branch for feeding water into it and a discharge line which feeds the material into the main pipeline. In order to control the rate at which the material is discharged from the chamber, an inclined chute with a vibrator is mounted on elastic supports on the bottom of the chamber. 2. A hydraulic feeding device of this description in which a hydraulic sorter of the countercurrent type is mounted above the upper lock of the chamber in order to concentrate the material according to grain size when the chamber is being loaded.

Card 1/2

ACCESSION NR: AP5010290

ASSOCIATION: Vsesoyuznyy ordena Lenina proyektno-izyskatel'skiy i nauchno-issledovatel'skiy institut "Gidroproyekt" imeni S. Ya. Zhuk (All-Union Order of Lenin Preliminary Study, Design and Scientific Research Institute "Gidroproyekt")

SUBMITTED: 13Aug63

ENCL: 00

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

JPRS

Card 2/2

AUTHOR: Proydn, V.Yu., Engineer SOV/67-11-5-7/18

TITLE: Valves for High Pressure in Oxygen and Air Pipes
(Ventil' vysokogo davleniya dlya kislородnykh i voz-
dushnykh kommunikatsiy)

PERIODICAL: Kislород, 1958, Vol 11, Nr 5, pp 47 - 47 (USSR)

ABSTRACT: A valve packing is described that is neither cone-
shaped nor spherical but saddle-shaped. It consists
of a body with a rotary piston which is packed
outwards by a nut with a fibrous intermediate layer.
The piston sinks by rotation with the flap shutter
into the saddle: closing of the valve. By opposite
rotation it is opened. The flap shutter is coated with
antifriction metal. These valves have been already
used in oxygen and air pipes and had to be exchanged
only when a new babbit had to be soldered onto. There
is 1 figure.

Card 1/1

FREYDIN, V.Yu., inzh.

Experience with the adsorption method of drying air. Kislorod 12
no.1:31-33 '59. (MIRA 12:6)
(Air--Drying) (Adsorption)

Freidman, M. G. Dual systems admitting a group of motions. Doklady Akad. Nauk SSSR (N.S.) 57, 558 (1947). (Russian)

A double system consists of linear elements (x^1, x^2, x^3) (in Cartan's sense) at the basis of which there are two metric forms $ds_1^2 = \omega_1 dx^1 + \omega_2 dx^2 + \omega_3 dx^3$ for the length of a curve $\omega_1 dx^1 + \omega_2 dx^2 + \omega_3 dx^3 = 0$. The characteristic property of such a double system is the fact that the angular metric of one is conormal to that of the other. If $ds_1^2 = \sqrt{K} ds_2^2$ and $ds_2^2 = \sqrt{K} ds_1^2$, the functions $K(x^i)$, $K(x^j)$ are constant along null lines. This gives $XK = XK = 0$, where $X = \xi^i \partial/\partial x^i$, ξ^i being the matrix of ω_i . The author obtains the "conditions of integrability" on the ω_i 's in order that they should define a double system. If the space (x^1, x^2, x^3) is mapped on the xy -plane $(x, y, z = dy/dx)$ so that the null lines of one system correspond to points, then this metric takes on a linear form and in particular ds_1^2 becomes Gaussian if one of the curvatures K is a constant. The author's aim is to construct such a double system with K, K constant, which yields a group of motions. She finds by integrating the conditions of structure that

$$ds_1^2 = \frac{da}{\sqrt{A(a)} \sqrt{a+b}}, \quad ds_2^2 = \frac{db}{\sqrt{B(b)} \sqrt{a+b}},$$

where $A' = -4K, B' = -4K$, while the "curve" is given by

$$\left(\int_a^b \frac{db}{(AB)(a+b)} \right) da - dx^3 = 0.$$

M. S. Knebelman (Pullman, Wash.)

Source: Mathematical Reviews,

Vol. 7

No. 1

FREYDINA, M-G.

Mathematical Reviews
Vol. 15 No. 1
Jan. 1954
Geometry

Freidina, M. G. Dual systems allowing a group of motions.
Trudy Sem. Vektor. Tenzor. Analizu 6: 420-443 (1948)
(Russian)

A dual system consists of linear elements in a plane defined by $(x, y, z = dy/dx)$ in which two metrics are prescribed, viz., $ds_1 = A_1 dx + B_1 dz$ and $ds_2 = A_2 dx + B_2 dz$, the A 's and B 's being functions of (x, y, z) and dz missing since $dy = z dx$. This is a special case of a nonholonomic space in which $dz = \omega_1 + \omega_2$, $\omega_1 = 1, 2, \dots, n, \omega_n = 0$, the ω_i being functions of (x, y, z) . The main purpose of the paper is to show that such a space admits at most a one-parameter group of motions and to construct such a space, that is, to give the explicit form of the ω 's in a canonical coordinate system.

M. S. Kuebelman (Pullman, Wash.)

FREYDINA, O. Kh.

FREYDINA, O. Kh.: "Problems of the clinical aspects and pathogenesis of hepatolenticular degeneration". Moscow, 1955. Acad Med Sci USSR. (Dissertations for the Degree of Candidate of Medical Sciences)

SO: Knizhnaya letopis', No. 52, 24 December, 1955. Moscow.

FRY DIA, C. J.

Disturbances in the function of the liver during hepatolenticular degeneration. E. S. Novakovskaya and O. E. Bezdina. *Voprosy Med. Khim.* 5, 61-72 (1953); *Refert. Zhur., Khim.* 1953, No. 542. In order to det. the characteristics of disturbances in the liver activity of sick persons resulting from hepatolenticular degeneration, the total content of protein, the content of albumin, globulin, and fibrinogen in the blood, the secretory function, and also the content of urea N, amino acids, and NH₄ in the urine were ascertained. In the majority of sick persons, the total content of protein, the relation of albumin to globulin, and the content of prothrombin and fibrinogen were lowered. The glycogen-forming function of the liver departed from the norm after injection of galactose, which was not noticed (in the majority of cases) after injection of glucose. In an overwhelming no. of sick persons the capacity of the liver to remove bilirubin from the blood was impaired as detd. by the Quick test. The urinary excretion of urea was lowered in some of the sick persons. Marjorie Kefauver

(1)

FREYDINA, Z.V.

Freydina, Z.V. "The construction of the rail-structural workshop of the Novotagil'sk metallurgy plant," Byulleten' stroit. tekhniki, 1948 No. 23, p. 7-12

SO: U-2889, Letopis Zhurnal'nykh Statey, No. 1, 1949

FREYDINA, Z.V., inzhener.

Precast reinforced concrete quay walls in Luzhniki, Biul.stroi.
tekh.13 no.11:15-18 N '56. (MIRA 10:1)

1. Uormostproyekt.
(Moscow--Wharves) (Precast concrete construction)

FREYDINA, Z.; FROLOV, A.; YELISAVETSKIY, B.; VOLKOVA, N.

Precast diaphragms for span structures. Avt.dor. 23 no.7:
32-3 of cover J1 '60. (MIRA 13:7)
(Viaducts)
(Precast concrete construction)

KURASOVA, G.P., kand.tekhn.nauk; FREYDINA, Z.V., inzh.; DAVYDOVA, V.Ye.,
inzh.

Using high-strength claydite bitumen in constructing over-
passes for motor-vehicle and electric-car traffic. Avt.dor,
25 no.8:13-15 Ag '62. (MIRA 16:2)

1. Proyektnyy institut "Mosinzhproyekt" (for Freydina).
(Viaducts)

5.1180

23116
S/184/61/000/002/001/008
A110/A033

AUTHORS: Golubev, A. I., Candidate of Physics and Mathematics; Freydisman,
G. M., Engineer

TITLE: Labyrinth pumps for corrosives

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 2, 1961, 9 - 12

TEXT: The article deals with low capacity and high pressure labyrinth pumps designed and tested at the VIGM (All-Union Institute of Hydraulic Machinery), by A. I. Golubev (author's certificate No.126748, June 16, 1958). The pumps are based on a multiple thread screw which rotates inside a bush with reversed multiple threading. Labyrinth pumps are similar to pumps working on the spiral self-lubricant endless screws principle, the only difference being that screw and bush are multiple threaded. Their operation is analogous to vortex and labyrinth packing and they operate in low viscosity fluids. Experiments proved that the threaded bush operating in water increases the pressure 7 - 10 times. The efficiency of labyrinth pumps is similar to that of vortex pumps and superior to single stage centrifugal pumps operating in underload conditions. A further common feature between labyrinth and vortex pumps is the marked dependence of their performance

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Labyrinth pumps for corrosives

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on their radial and end clearances respectively. The advantages of labyrinth pumps are: simple shape of all metal and non-metal components; absence of mechanical friction between screw and bushing; flexibility of construction apparent in the proportionality between pressure and the length of flow-area, and higher suction power. Labyrinth pumps were included in the nomenclature of "Wing Pumps for the Chemical Industry. Standard Series". In accordance with this nomenclature the Tsentral'noye konstruktorskoye byuro gidromashinostroyeniya, TsKB GM (Central Designs Office of Hydraulic Machinery) developed about ten labyrinth pump models for test purposes. Some of these have already passed tests and were sent to production plants. Beside the TsKB GM, the following organizations have participated in the project: Shchelkovskiy nasosnyy zavod (Shchelkov Pump Plant); UkrNIIKhIMMASH and the VIGM. Figure 1 shows a 1.5%-2П (1.5Kh-2P) labyrinth pump made of faolite "A" plastics and intended for the handling of corrosives, the pump works at a pressure of 65 m liquid column and 1.8 l/sec. capacity. Screw (2) and bush (3) have two symmetric threadings which results in a dual suction and relieves the rotor from the axial force, apart from ensuring satisfactory performance of the gland under the suction pressure. Figure 2 shows the performance of such a pump with a screw diameter of 100 mm. The 1XП-3-B (1KhP-3-B) labyrinth type immersion pump

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Labyrinth pumps for corrosives

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used for hydrofluoric acids works at a pressure of 10m of liquid column and 1 m³/h cap. and is shown in Figure 3. Suction pipe (1), screw (2) and bushing (3) are made of Monel metal. The pump has graphite bearing bushings (5) operating on acid lubrication and stuffing box (7) for the sealing liquid. Figure 4 shows a 1.5X-2A-2 (1.5Kh-2A-2) labyrinth pump used for hydrocarbons with resin admixtures at 180 - 200°C operating at a pressure of 65 m liquid column and 1.8 l/sec. capacity. The screw has two symmetrical threads and relieves the rotor from axial stresses. The male and female threads of the screw operate jointly with static threads of suction pipe (1), gland body (7) and bushings (3 and 5). The main parts are made of carbon steel. As the pumped liquid tends to crystallize at normal temperature, the pump casing is equipped with pre-heating jacket (4). The escape of poisonous gases is prevented by stuffing boxes (8 and 11) and hermetical connector (9). All three pumps have been designed by the Central Designing Office of Hydraulic Machinery. Figure 5 shows a 1.5X-2M (1.5Kh-2I) labyrinth pump made of acidproof 3M629 (EI629) steel and designed at the Shchelkov Pump Plant for operation with corrosive hydrocarbons. The pump operates at a pressure of 100 m liquid column and a capacity of 3 m³/h. Contrary to pumps above described bearing bush (2) relieves the rotor from axial stresses. The intake is radial, the pressure axial and the pressure pipe is near the outlet. Due to the

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Labyrinth pumps for corrosives

described layout of suction and pressure pockets the gland takes up the intake pressure only. 1.5Kh-2I labyrinth pump replaces three-stage centrifugal pumps. Its characteristics are the following: the maximum efficiency is 26% while the reference point efficiency is 22 %. In view of the low delivery, these two types of pumps are similar in efficiency, but labyrinth pumps have a higher efficiency. Besides, vortex pumps cannot be made entirely of EI629 steel, whose toughness during friction in the face clearances leads to galling and breaking of the operating organs. Experimental tests on 1.5Kh-2I pumps are nearly completed after which the pump will be sent to a plant. Several pilot models of 1KhP-3B and 1.5Kh-2A-2 pumps are still under construction; one passed tests and is now used in the phenolacetone production. The 1.5Kh-2P pump is undergoing service tests with 20 % hydrochloric acid. The above mentioned designs do not exhaust all possibilities; analogous operating principles can be applied in the design of dynamic rotary shaft packings, e.g., for pumps delivering butadiene rubber. These so-called labyrinth impellers would prove particularly efficient at high velocities of the rotary shaft, as the pressure drop transmitted to them is proportional to the circumferential velocity square. There are 5 figures.

Card 4/8

FREYDKIN, Il'ya Davidovich; LEVITINA, K.I., red.; YAKOVLEVA, N.A.,
tekhn. red.

[Manual for qualitative chemical analysis in intrapharmaceutical control] Posobie po kachestvennomu khimicheskomu analizu pri vnutriaptechnom kontrole. Moskva, Medgiz, 1963. 206 p.

(MIRA 16:3)

(DRUGS—ADULTERATION AND ANALYSIS)

FREYDKIN, L.P.; FOMENKO, P.A.

Quick-drying stable inscriptions on glass. Med. prom. 13 no.8:
60 Ag '60. (MIRA 13:8)

1. Khimiko-farmatsevticheskiy zavod No. 9.
(DRUG INDUSTRY)

USSR/Physics

Dec 48

Material Test Techniques
Mechanics of Forming and Cutting Processes

"Application of the Microhardness Method to the
Maturation of the Cold Hardening of the Surface
Layers of the Walls of Holes." M. Ya. Freydlin,
State Sci Res Technol Inst, 6 pp 1450-1453

"Zavod Lab" Vol XIV, No 12

Describes experiments on measurements of the
microhardness of layers situated at various
distances up to 30-40 microns, from the walls of
holes drilled in steel specimens. A high-speed

49/497104

USSR/Physics (Contd)

Dec 48

drill, rotating at 2,500 rpm, was used to drill
a hole 8 mm in diameter a normalized steel speci-
men. Specimen was then cut up to provide seven
portions, each of which included a part of the
cylindrical surface of the hole, different depths
of this surface being then removed from each
portion of electrolytic polishing. Hardness tests
showed that during drilling a thin-surface layer
is formed which, as a result of the cold working
it has undergone, is considerably harder than the
mass of the material.

49/497104

FREYDKIN, M.Ya.

Mechanization of lapping operations and investigation of
lapping processes. Trudy Sem.po kach.poverkh,2:92-105 '53.
(MLRA 7:2)
(Grinding and polishing)

FREYDKIN, M.Ya.; LEVINA, M.S.; ZHUSTAREV, Ye.N.

Finish machining of holes by grooving. Stan.1 instr. 31
no.2:37-40 F '60. (MIRA 13:5)
(Metals--Finishing)

11100

27725
S/122/61/000/007/007/007
D209/D304

AUTHORS: Zakharov, V.I., Matveyev, V.Ya., Zhustarev, Ye.N.,
and Freydkin, M.Ya., Engineers

TITLE: The application of ultrasonic vibrations in milling,
planing and thread cutting

PERIODICAL: Vestnik mashinostroyeniya, no. 7, 1961, 62 - 65

TEXT: The application of ultrasonic vibrations to milling cutters, drills, etc. is discussed. By subjecting the tool to vibrations of ultrasonic frequencies, cutting can be carried out with greatly reduced effort. A milling machine, type TГ-2 (TG-2) is described which is used for carrying out experiments with ultrasonic vibrations applied to the tool. This device is shown in Fig. 1. Here 1 is the magnetic vibrator, 2 - main support, 3 - tool holder 4 - end cutter; the magnetic vibrator is fed through a pair of brushes, 5, from a generator, 7 is an auxiliary support. Experiments were carried out on lead and stainless steel. The unloaded

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The application of ultrasonic ...

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amplitude of the vibrations was 20 - 25 μ . Special emphasis was laid on the cooling of the tool and vibrator necessitated by the high speed used. Thread cutting was carried out using lead, stainless steel and highly heat resistant alloys. The taps used were made of P18 (R18) steel with diameters ranging from 10 to 20 mm. For normal cutting the applied torque is the sum of the frictional and cutting torque. With ultrasonic vibrations of the tool 35 % of the input torque is taken up by friction when using standard taps of tempered steel. A comparison is given in tabulated form between the power required for cutting with and without ultrasonic vibrations of the tool along its cutting edge. When using tap M18 x 1.5 for cutting the thread in a heat resistant alloy at 25 rev/min., a reduction of 38 % in the applied torque results by the use of ultrasonic vibrations. In this case the resonance amplitude is less than 20 μ . Examination of the threads in accordance with the specification laid down on GOST 9253-59 (GOST 9253-59) showed first-class results. Experiments carried out on drills showed little or no improvement, the reason being that the vibrations

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The application of ultrasonic ...

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were not directed along the cutting edge of the drill. The authors make the following conclusions: 1) The use of ultrasonic vibrations greatly reduces the cutting force, especially in the case of hard materials. 2) The vibrations must be directed along the cutting edge of the tool. 3) The tool must have the requisite geometry for successful use under vibrations of ultrasonic frequencies. 4) The reduction in cutting force requires less rigid machines. There are 3 figures, 2 tables and 2 Soviet-bloc references.



Card 3/4

V. Freidkin, S. A. Solution of a class of singular integral equations

Consider the singular integral equation

$$f(x) = a\varphi(x) + (c\pi)^{-1}b \int_L (t-x)^{-1} \varphi(t) dt,$$

where L is the union of an infinite set of disjoint intervals on the real line. Consider the space of functions $\varphi(t)$ whose modulus squared is summable.

$$p(x) = (-1)^n \prod_{k=1}^n [(a_k - x)(b_k - x)]^k$$

If L is bounded and $a^2 \neq b^2$, then the equation has a unique solution in the space considered. D. C. Kleincke.

Freidkin, S. A. The operator of singular integration on a broken contour in spaces with a weight. Kishinev. Gos. Univ. Uč. Zap. 11 (1954), 19-27. (Russian)
The author considers the operator

$$(S\varphi)(t_0) = ((\pi i)^{-1} \int_L \varphi(t)(t-t_0)^{-1} dt),$$

where L is a finite set of arcs, on a class of Banach spaces admitting functions with poles at some of the ends of the arcs. The theorems concern the closure of the range of S and its deficiency.

D. C. Klemetsch.

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88882

/6.3900

S/044/60/000/007/038/058
C111/C222

AUTHOR: Freydkin, S.A.

TITLE: The solution of a functional equation

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 134.
Abstract no.7789. Uch.zap.Kishenevsk.un-t, 1959, 39, 239-242

TEXT: The author solves the functional equation $f(x) - \lambda f(x + \omega) = \sin x$, where $\lambda = e^{\pm i\omega}$. At first he considers the case $\omega \neq k\pi$. The solution is obtained in the form

$$f(x) = \frac{x e^{-ix}}{2i\omega} + \frac{e^{ix}}{2i(1 - e^{-2i\omega})} + e^{-ix} \gamma(x) \quad \text{for } \lambda = e^{i\omega},$$

and

$$f(x) = \frac{e^{-ix}}{2i(1 - e^{-2i\omega})} - \frac{x e^{ix}}{2i\omega} + e^{ix} \gamma(x) \quad \text{for } \lambda = e^{-i\omega}.$$

For $\omega = k\pi = 2n\pi$ it holds $f(x) = \frac{x}{4\pi n i} (e^{-ix} - e^{ix}) + \gamma(x)$; for $\omega = (2n-1)\pi$

it holds $f(x) = \frac{x(e^{-ix} - e^{ix})}{(2n-1)\pi i} + \gamma(x) \quad (\lambda = e^{i\omega})$.

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The solution of a functional equation

S/044/60/000/007/038/058
C111/C222

[Abstracter's note: The above text is a full translation of the original
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IX

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